**Section 340.410 Testing for Leakage or Contamination of Sealed Sources**

a) The licensee in possession of any sealed source shall assure that:

1) Each sealed source, except as specified in subsection (b) of this Section, is tested for leakage or contamination and the test results that confirm that the sealed source is not leaking or contaminated are received before the sealed source is put into use, unless the licensee has a certificate from the transferor indicating that the sealed source was tested within 6 months for beta and gamma emitting sources, or within 3 months for sources designed to emit alpha particles, before transfer to the licensee.

2) Each sealed source that is not designed to emit alpha particles is tested for leakage or contamination at intervals not to exceed 6 months or at alternative intervals approved by the Agency, pursuant to 32 Ill. Adm. Code 330.280(m), the U.S. Nuclear Regulatory Commission, an Agreement State or a Licensing State.

3) Each sealed source that is designed to emit alpha particles is tested for leakage or contamination at intervals not to exceed 3 months or at alternative intervals approved by the Agency, pursuant to 32 Ill. Adm. Code 330.280(m), the U.S. Nuclear Regulatory Commission, an Agreement State or a Licensing State.

4) Each sealed source that is required to be tested for leakage or contamination shall be removed from service if there is reason to suspect that the sealed source may have been damaged or may be leaking or contaminated. The source shall be kept out of service until test results that confirm there is no leakage or contamination are received.

5) Tests for leakage for all sealed sources, except brachytherapy sources manufactured to contain radium, shall be capable of detecting the presence of 185 Bq (0.005 µCi) of radioactive material on a test sample. Test samples shall be taken from the sealed source or from the surfaces of the container in which the sealed source is stored or mounted on which one might expect contamination to accumulate. For a sealed source contained in a device, test samples shall be obtained when the source is in the "off" position. If setting the source to the "off" position would disrupt the licensee's activities, test samples may be obtained while the source is in the "on" position, provided that the dose likely to be received by the individual while obtaining the samples will not be so great as to require monitoring pursuant to Section 340.520(a) of this Part.

6) The test for leakage for brachytherapy sources manufactured to contain radium shall be capable of detecting an absolute leakage rate of 37 Bq (0.001 µCi) of radon-222 in a 24 hour period when the collection efficiency for radon-222 and its daughters has been determined with respect to collection method, volume and time.

7) Tests for contamination from radium daughters shall be taken on the interior surface of brachytherapy source storage containers and shall be capable of detecting the presence of 185 Bq (0.005 µCi) of a radium daughter which has a half-life greater than 4 days.

b) A licensee need not perform tests for leakage or contamination on the following sealed sources:

1) Sealed sources containing only radioactive material with a half-life of less than 30 days;

2) Sealed sources containing only radioactive material as a gas;

3) Sealed sources containing 3.7 MBq (100 µCi) or less of beta or photon emitting material or 370 kBq (10 µCi) or less of alpha emitting material;

4) Sealed sources containing only hydrogen-3;

5) Seeds of iridium-192 encased in nylon ribbon;

6) Sealed sources, except teletherapy and brachytherapy sources, that are stored, not being used and identified as in storage. The licensee shall, however, test each such sealed source for leakage or contamination and receive the test results that confirm that the sealed source is not leaking or contaminated before any use or transfer unless it has been tested for leakage or contamination within 6 months for beta and gamma emitting sources, or within 3 months for sources designed to emit alpha particles, before the date of use or transfer; and

7) Sealed sources distributed under a license issued pursuant to 32 Ill. Adm. Code 330.280(m), but only if the evaluation sheet for those sealed sources, as filed in the "Radioactive Material Reference Manual" maintained by the Department of Health and Human Services or in the "Registry of Radioactive Sealed Sources and Devices" maintained by the U.S. Nuclear Regulatory Commission, specifies that testing for leakage or contamination is not required.

c) Tests for leakage or contamination from sealed sources shall be performed by persons specifically authorized by the Agency, an Agreement State, a Licensing State or the Nuclear Regulatory Commission to perform such services.

d) Test results shall be kept as specified in Section 340.1135 of this Part.

e) The following shall be considered evidence that a sealed source is leaking:

1) The presence of 185 Bq (0.005 µCi) or more of removable contamination on any test sample.

2) Leakage of 37 Bq (0.001 µCi) of radon-222 per 24 hours for brachytherapy sources manufactured to contain radium.

3) The presence of removable contamination resulting from the decay of 185 Bq (0.005 µCi) or more of radium.

f) The licensee shall immediately withdraw a leaking or contaminated sealed source from use and shall take action to prevent the spread of contamination. The leaking or contaminated sealed source shall be repaired, decontaminated or disposed of in accordance with this Part.

g) Reports of test results for leaking or contaminated sealed sources shall be made pursuant to Section 340.1260 of this Part.

(Source: Amended at 29 Ill. Reg. 20841, effective December 16, 2005)